

We claim:

1. A non-lethal projectile comprising:

a projectile nose joined to a projectile base;

said projectile nose composed of a frangible, rigid, polymer foam material.

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2. The projectile of claim 1, wherein said projectile nose has a rounded forward wall and a cylindrical wall, said cylindrical wall being thinner than said forward wall.

3. The projectile of claim 1, wherein said foam material has a density between  
10 approximately 8 and 14 pounds per cubic foot.

4. The projectile of claim 1, wherein said projectile nose further comprises a cavity.

5. The projectile of claim 4, further comprising a payload disposed within said cavity.

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6. The projectile of claim 5, wherein said payload is chosen from the group of payloads consisting of marker agents, lacrimators, irritants, inflammatory agents, odorants and inert powders.

20 7. The projectile of claim 1, said projectile nose further comprising a rear plug wall joined to said cylindrical wall, the combination of said forward wall, said cylindrical wall and said rear plug wall defining a nose cavity.

8. The projectile of claim 7, wherein said payload is chosen from the group of payloads consisting of marker agents, lacrimators, irritants, inflammatory agents, odorants and inert powders.

5 9. The projectile of claim 7, wherein said rear plug wall is joined to said projectile base.

10. The projectile of claim 1, wherein said foam material is a polyurethane.

11. The projectile of claim 2, wherein said projectile base comprises a forward wall joined to  
10 a cylindrical wall.

12. The projectile of claim 4, wherein said projectile base comprises a forward wall joined to a cylindrical wall.

15 13. The projectile of claim 7, wherein said projectile base comprises a forward wall joined to a cylindrical wall, and wherein said rear plug wall is joined to said forward wall of said projectile base.

14. A non-lethal impact munition comprising:

a projectile comprising a projectile nose and a projectile body, said projectile separably joined to a propulsion shell comprising propulsion means to separate said projectile from said propulsion shell;

5           said projectile nose composed of a frangible, rigid, polymer foam material characterized in that said projectile nose is crushed upon impact with a target in a manner that absorbs and dissipates energy of impact.

15. The munition of claim 14, wherein said projectile nose has a rounded forward wall and a

10       cylindrical wall, said cylindrical wall being thinner than said forward wall.

16. The munition of claim 14, wherein said foam material has a density between approximately 8 and 14 pounds per cubic foot.

15   17. The munition of claim 14, wherein said projectile nose further comprises a cavity.

18. The munition of claim 17, further comprising a payload disposed within said cavity, wherein said payload is laterally dispersed from said cavity upon impact.

20   19. The munition of claim 18, wherein said payload is chosen from the group of payloads consisting of marker agents, lacrimators, irritants, inflammatory agents, odorants and inert powders.

20. The munition of claim 14, said projectile nose further comprising a rear plug wall joined to said cylindrical wall, the combination of said forward wall, said cylindrical wall and said rear plug wall defining a nose cavity.

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21. The munition of claim 20, wherein said payload is chosen from the group of payloads consisting of marker agents, lacrimators, irritants, inflammatory agents, odorants and inert powders.

10 22. The munition of claim 20, wherein said rear plug wall is joined to said projectile base.

23. The munition of claim 14, wherein said foam material is a polyurethane.

15 24. The munition of claim 15, wherein said projectile base comprises a forward wall joined to a cylindrical wall.

25. The munition of claim 17, wherein said projectile base comprises a forward wall joined to a cylindrical wall.

20 26. The munition of claim 20, wherein said projectile base comprises a forward wall joined to a cylindrical wall, and wherein said rear plug wall is joined to said forward wall of said projectile base.

27. A non-lethal impact munition comprising:

a projectile comprising a projectile nose and a projectile body, said projectile separably joined to a propulsion shell comprising propulsion means to separate said projectile from said 5 propulsion shell;

said projectile nose composed of a frangible, rigid, polymer foam material characterized in that said projectile nose is sufficiently rigid to maintain aerodynamic stability during flight but is sufficiently frangible to crush upon impact with a target in a manner that absorbs and dissipates energy of impact to reduce the energy transferred to such target by said projectile; and

10 a payload disposed within said projectile nose, whereby said payload is laterally dispersed from said projectile nose upon impact, such that additional energy of impact is dissipated to reduce the energy transferred to such target by said projectile.

28. The munition of claim 27, wherein said projectile nose has a rounded forward wall and a 15 cylindrical wall, said cylindrical wall being thinner than said forward wall.

29. The munition of claim 27, wherein said foam material has a density between approximately 8 and 14 pounds per cubic foot.

20 30. The munition of claim 27, wherein said payload is chosen from the group of payloads consisting of marker agents, lacrimators, irritants, inflammatory agents, odorants and inert powders.

31. The munition of claim 28, said projectile nose further comprising a rear plug wall joined to said cylindrical wall, the combination of said forward wall, said cylindrical wall and said rear plug wall defining a nose cavity.